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7. A repeater according to claim 5, wherein the first and second antennas are adapted to receive differently polarized signals.

8. A repeater according to claim 1, wherein the first and the second repeating
2 sections are adapted to introduce a time differential between the reverse-main-signals
and the reverse-diversity-signals.

9. A radio-frequency (RF) repeater system, comprising:

2 a first repeater unit, which is adapted to receive and amplify forward-signals from a first transceiver so as to generate amplified-forward-signals;

4 cabling, which is adapted to receive and convey the amplified-forward-signals from the first repeater unit; and

6 a second repeater unit, which is adapted to receive the amplified-forward-signals from the cabling and to further amplify the amplified-forward-signals so as to

8 generate resultant-forward-signals and to radiate the resultant-forward-signals to a second transceiver, and which is adapted to receive and amplify reverse-main-signals

10 and reverse-diversity-signals from the second transceiver so as to generate respectively amplified-reverse-main-signals and amplified-reverse-diversity-signals

12 and to convey the amplified-reverse-main-signals and the amplified-reverse-diversity-signals to the first repeater unit via the cabling, and wherein the first repeater unit is

14 adapted to further amplify the amplified-reverse-main-signals and amplified-reverse-diversity-signals so as to generate respective resultant-reverse-main-signals and

16 resultant-reverse-diversity-signals and to transmit the resultant-reverse-main-signals and the resultant-reverse-diversity-signals to the first transceiver.

10. A repeater according to claim 9, wherein the forward-signals are not received

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17. A repeater according to claim 9, wherein the first repeater unit comprises a
2 power supply which supplies power to the first repeater unit and to the second
repeater unit via the cabling.

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18. A repeater according to claim 9, wherein the first repeater unit comprises a
2 monitor which monitors a condition of the first repeater unit and of the second
repeater unit via the cabling.

19. A repeater according to claim 9, wherein the first repeater unit comprises a
2 first forward-signal-converter adapted to generate the amplified-forward-signals as
converted-frequency-forward-signals, and the second repeater unit comprises a
4 second forward-signal-converter adapted to generate the resultant-forward-signals
from the converted-frequency-forward-signals.

20. A repeater according to claim 19, wherein the first forward-signal-converter
2 comprises a first mixer which receives an indication of a local oscillator (LO)
frequency and generates the converted-frequency-forward-signals as intermediate-
4 frequency-forward-signals (IF-forward-signals) having a frequency less than the
forward-signals responsive to the indication, and wherein the second forward-signal-
6 converter comprises a second mixer which receives the indication of the LO
frequency and the IF-forward-signals and generates the resultant-forward-signals
8 responsive thereto.

21. A repeater according to claim 19, wherein the first forward-signal-converter
2 comprises an optical emitter which generates a modulated-optical-carrier responsive
to the forward-signals, the second forward-signal-converter comprises an optical
4 detector which receives the modulated-optical-carrier and generates the resultant-
forward-signals therefrom, and wherein the cabling comprises a fiber optic cable.

22. A repeater according to claim 9, wherein the second repeater unit comprises:
2 a first reverse-signal-converter adapted to generate the amplified-reverse-
main-signals as converted-frequency-reverse-main-signals; and
4 a second reverse-signal-converter adapted to generate the amplified-reverse-
diversity-signals as converted-frequency-reverse-diversity-signals,

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26. A repeater according to claim 25, wherein the second LO frequency and the first LO frequency are different.

27. A repeater according to claim 22, wherein the first reverse-signal-converter
comprises a first optical emitter which generates a first modulated-optical-carrier
responsive to the reverse-main-signals, and wherein the third reverse-signal-converter
comprises a first optical detector which receives the first modulated-optical-carrier
and generates the resultant-reverse-main-signals therefrom, and wherein the cabling
comprises a fiber optic cable.

28. A repeater according to claim 27, wherein the second reverse-signal-converter
comprises a second optical emitter which generates a second modulated-optical-
carrier responsive to the reverse-diversity-signals, and wherein the fourth reverse-
signal-converter comprises a second optical detector which receives the second
modulated-optical-carrier and generates the resultant-reverse-diversity-signals
therefrom.

29. A repeater according to claim 28, wherein the second modulated-optical-
carrier comprises a second modulated-optical-carrier frequency different in value
from a first modulated-optical-carrier frequency of the first modulated-optical-carrier.

30. A method for repeating radio-frequency (RF) signals, comprising:
receiving in a first repeating section forward-signals from a first transceiver;
amplifying the forward-signals in the first repeating section so as to generate
amplified-forward-signals;
radiating the amplified-forward-signals from the first repeating section to a
second transceiver;
receiving in the first repeating section reverse-main-signals from the second
transceiver;
amplifying the reverse-main-signals in the first repeating section so as to
generate amplified-reverse-main-signals;
transmitting the amplified-reverse-main-signals from the first repeating
section to the first transceiver;

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36. A method according to claim 34, wherein the first and second antennas are
2 adapted to receive differently polarized signals.

37. A method according to claim 30, and comprising introducing a time delay
2 between the reverse-main-signals and the reverse-diversity-signals.

38. A method for repeating radio-frequency (RF) signals, comprising:
2 receiving forward-signals from a first transceiver;
amplifying the forward-signals in a first repeater unit so as to generate
4 amplified-forward-signals;
conveying the amplified-forward-signals to a second repeater unit;
6 further amplifying the amplified-forward-signals in the second repeater unit so
as to generate resultant-forward-signals;
8 radiating the resultant-forward-signals to a second transceiver;
receiving reverse-main-signals and reverse-diversity-signals from the second
10 transceiver;
amplifying the reverse-main-signals and the reverse-diversity-signals in the
12 second repeater unit so as to generate respectively amplified-reverse-main-signals and
amplified-reverse-diversity-signals;
14 conveying the amplified-reverse-main-signals and the amplified-reverse-
diversity-signals to the first repeater unit;
16 further amplifying the amplified-reverse-main-signals and amplified-reverse-
diversity-signals in the first repeater unit so as to generate respectively resultant-
18 reverse-main-signals and resultant-reverse-diversity-signals; and
transmitting the resultant-reverse-main-signals and the resultant-reverse-
20 diversity-signals to the first transceiver.

39. A method according to claim 38, wherein conveying the amplified-forward-
2 signals comprises conveying the amplified-forward-signals via cabling.

40. A method according to claim 38, wherein the forward-signals are not received
2 by the second transceiver, and the reverse-main-signals and the reverse-diversity-
signals are not received by the first transceiver.

41. A method according to claim 38, wherein receiving the reverse-main-signals
2 and the reverse-diversity-signals from the second transceiver comprises transmitting a
reverse-signal from the second transceiver and generating the reverse-main-signals
4 and the reverse-diversity-signals responsive to the reverse-signal.

42. A method according to claim 38, wherein receiving the reverse-main-signals
2 and the reverse-diversity-signals comprises receiving the reverse-main-signals in a
first antenna and receiving the reverse-diversity-signals in a second antenna.

43. A method according to claim 42, wherein the first and second antennas are
2 separated by a distance within a range of 1 - 6 wavelengths of the reverse-main-
signals and the reverse-diversity-signals.

44. A method according to claim 42, wherein the first and second antennas are
2 adapted to receive differently polarized signals.

45. A method according to claim 38, and comprising introducing a time delay
2 between the reverse-main-signals and the reverse-diversity-signals.

46. A method according to claim 38, wherein conveying the amplified-forward-
2 signals comprises conveying the amplified-forward-signals via a first cable, and
wherein receiving the reverse-main-signals and the reverse-diversity-signals
4 comprises conveying the reverse-main-signals via the first cable and conveying the
reverse-diversity-signals via a second cable.

47. A method according to claim 38, wherein amplifying the forward-signals
2 comprises converting a frequency of the forward-signals to generate the amplified-
forward-signals as converted-frequency-forward-signals, and wherein further
4 amplifying the amplified-forward-signals comprises generating the resultant-forward-
signals from the converted-frequency-forward-signals.

48. A method according to claim 47, wherein converting the frequency of the
2 forward-signals comprises mixing the forward-signals in a first mixer with a local
oscillator (LO) frequency and generating the converted-frequency-forward-signals as
4 intermediate-frequency-forward-signals (IF-forward-signals) having a frequency less
than the forward-signals, and wherein further amplifying the amplified-forward-
6 signals comprises mixing the IF-forward-signals with the LO frequency and the IF-
forward-signals in a second mixer and generating the resultant-forward-signals
8 therefrom.

49. A method according to claim 47, wherein converting the frequency of the
2 forward-signals comprises modulating an optical carrier to generate a modulated-
optical-carrier responsive to the forward-signals, and conveying the modulated-
4 optical-carrier from the first repeater unit to the second repeater unit via a fiber optic
cable, and generating the resultant-forward-signals comprises detecting the
6 modulated-optical-carrier.

50. A method according to claim 38, and comprising:
2 generating in a first reverse-signal-converter comprised in the second repeater
unit the amplified-reverse-main-signals as converted-frequency-reverse-main-signals;
4 generating in a second reverse-signal-converter comprised in the second
repeater unit the amplified-reverse-diversity-signals as converted-frequency-reverse-
6 diversity-signals;
generating in a third reverse-signal-converter comprised in the first repeater
8 unit the resultant-reverse-main-signals from the converted-frequency-reverse-main-

signals; and

- 10 generating in a fourth reverse-signal-converter comprised in the first repeater
unit the resultant-reverse-diversity-signals from the converted-frequency-reverse-
12 diversity-signals.

51. A method according to claim 50, wherein the converted-frequency-reverse-
2 diversity-signals comprise a different frequency from the converted-frequency-
reverse-main-signals.

52. A method according to claim 50, wherein generating in the first reverse-
2 signal-converter comprises mixing a first local oscillator (LO) frequency with the
reverse-main-signals so as to generate the converted-frequency-reverse-main-signals
4 as intermediate-frequency-reverse-main-signals (IF-reverse-main-signals) having a
frequency less than the reverse-main-signals, and generating in the third reverse-
6 signal-converter comprises mixing the first LO frequency and the IF-reverse-main-
signals so as to generate the resultant-reverse-main-signals therefrom.

53. A method according to claim 52, wherein generating in the second reverse-
2 signal-converter comprises mixing a second LO frequency different from the first LO
frequency with the reverse-diversity-signals so as to generate the converted-
4 frequency-reverse-diversity-signals as intermediate-frequency-reverse-diversity-
signals (IF-reverse-diversity-signals) having a frequency less than the reverse-
6 diversity-signals, and wherein generating in the fourth reverse-signal-converter
comprises mixing the second LO frequency and the IF-reverse-diversity-signals so as
8 to generate the resultant-reverse-diversity-signals therefrom.

54. A method according to claim 50, wherein generating in the first reverse-
2 signal-converter comprises modulating a first optical emitter with the reverse-main-
signals so as to produce a first modulated-optical-carrier and conveying the first
4 modulated-optical-carrier from the second repeater unit to the first repeater unit via a

55. A method according to claim 54, wherein generating in the second reverse-signal-converter comprises modulating a second optical emitter with the reverse-diversity-signals so as to produce a second modulated-optical-carrier, and conveying the first modulated-optical-carrier from the second repeater unit to the first repeater unit via the fiber optic cable, and wherein generating in the fourth reverse-signal-converter comprises detecting in a second optical detector the second modulated-optical-carrier and generating the resultant-reverse-diversity-signals therefrom.

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57. A method for repeating radio-frequency (RF) signals, comprising:

2 receiving forward-signals from a first transceiver;

4 amplifying the forward-signals in a first repeater unit so as to generate amplified-forward-signals;

6 conveying the amplified-forward-signals to a plurality of second repeater units;

8 further amplifying the amplified-forward-signals in the plurality of second repeater units so as to generate resultant-forward-signals;

10 radiating the resultant-forward-signals to a second transceiver;

12 receiving reverse-main-signals and reverse-diversity-signals from the second transceiver;

14 amplifying the reverse-main-signals and the reverse-diversity-signals in the plurality of second repeater units so as to generate respectively amplified-reverse-main-signals and amplified-reverse-diversity-signals;

16 conveying the amplified-reverse-main-signals and the amplified-reverse-diversity-signals to the first repeater unit;

18 further amplifying the amplified-reverse-main-signals and amplified-reverse-diversity-signals in the first repeater unit so as to generate respectively resultant-reverse-main-signals and resultant-reverse-diversity-signals; and

20 transmitting the resultant-reverse-main-signals and the resultant-reverse-diversity-signals to the first transceiver.

58. A method according to claim 57, wherein conveying the amplified-forward-signals comprises conveying the amplified-forward-signals via cabling.

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